

From: [Shappee, Cecilia](#)
To: [Moore, Gary](#)
Cc: [Griner, Jeffrey J.](#); [Cobb, Derrick](#)
Subject: FW: Contact for Gary Moore & Water Discharge Options for CES
Date: Friday, September 05, 2014 5:43:19 PM

See below for the info on options for water discharge.

From: Winkler, Brad
Sent: Friday, September 05, 2014 4:59 PM
To: Shappee, Cecilia
Cc: Sandt, Justin
Subject: Contact for Gary Moore & Water Discharge Options for CES
Ceci —

I talked to Clyde Smith (tel. 832-395-5800) in the City of Houston's industrial pretreatment group. He recommends that a letter be submitted, with analytical results attached, requesting guidance from the City on the feasibility of discharging the site water to the City's sanitary sewer system and seeking COH guidance on what, if any physical or chemical pretreatment would be required. The letter would also have to specify the source of the water (e.g., run-off from non-process areas), the total quantity proposed for discharge on a daily basis and the proposed time frame during which the discharges are expected to occur.

It looks as though there are at least three potential options:

1. If the City allows, pump the water directly to the nearest City sanitary sewer. The one-time purchase cost (pump, starter panel wiring, piping, installation, removal at end, etc.) is approx. \$7500. Monthly O&M (principally electricity costs and laboratory analyses) will be about \$650 per month. The City will charge about \$6 for each 1000 gallons discharged. The approximate cost for six months of operations is approximately **\$16,500** (\$13,800 per estimated costs above plus 20% contingency).
2. If the City allows, pump the water to an onsite treatment unit, treat the water and discharge the treated water to the City sanitary system. The system consists of the pump (as described above), oil/water separator, filter units and carbon adsorption units. The treatment units are assumed to be rented. Cost are estimated as follows:

One-Time Costs		Equipment Rental		O&M	
Pump	\$7,500	O/W Separator (1)	\$500 per month	City Fee	\$6.00 per 1,000 gals
Mobilization/Demobilization	\$20,000	Carbon Adsorbers (2)	\$1,000 per month	Laboratory	\$500 per month
Carbon Characterization	\$2,000	Sand Filters (2)	\$1,000 per month	Electricity	\$250 per month
Demolition	\$5,000	Piping Manifold (1)	\$300 per month		

Six months' operation will be in the neighborhood of **\$70,000** (\$58,200 per tabulated prices above plus 20% contingency).

3. Trucking water to a public industrial waste treatment plant (Gulf Coast Waste Disposal Authority) or to a licensed private treatment facility. This cost may be in the neighborhood of \$1 per gallon disposed of and could be **\$300,000 to \$500,000** for six months of operations.

Our options will become clearer after we get the analytical results on Monday and have solid data to submit to the City.

Regards,
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